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HYDROLOGICAL MEMORANDA No.25

# FREQUENCY MAPS OF DAILY RAINFALL

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Each of these maps shows approximately the pattern of the frequency with which a specified 24-hour total of rainfall is attained (i.e., equalled or surpassed) at any one spot, the 24 hours being always reckoned from a fixed time of day - conventionally 0900 GMT.

The plotted figures, which refer to the standard 35-year period from 1916 to 1950, are from M.O. Hydrological Memoranda; and the isopleths have been drawn at convenient multiples of 35 so as to show the frequencies per annum. Some guidance in the course of the drawing has come from the already known 1916-1950 average annual total rainfall pattern that is based on figures for the same stations and from others as listed in the same Hydrological Memoranda.

These maps are interesting, incidentally, from the viewpoint of the well-known Bilham formula which purports to give for England and Wales the general long-term frequencies of attaining specified rainfalls in specified numbers of hours without restriction on time of day. For a rainfall to attain 1.0 inch in 24 hours, in particular, the Bilham 35-year frequency in round figures would be 80 (this being in good accord with the mean of the observed frequencies at ten stations where autographic records have been maintained and suitably tabulated for a suitably long time); and the map of frequencies of daily rainfalls of at least 1.0 inch is seen to be broadly consistent with this, the frequencies over most of England actually being somewhat lower than 80 as is naturally to be expected because of the 24 hours being tied to a fixed time of day.

D. J. HOLLAND
M.O.3.

ORGS UKMO H

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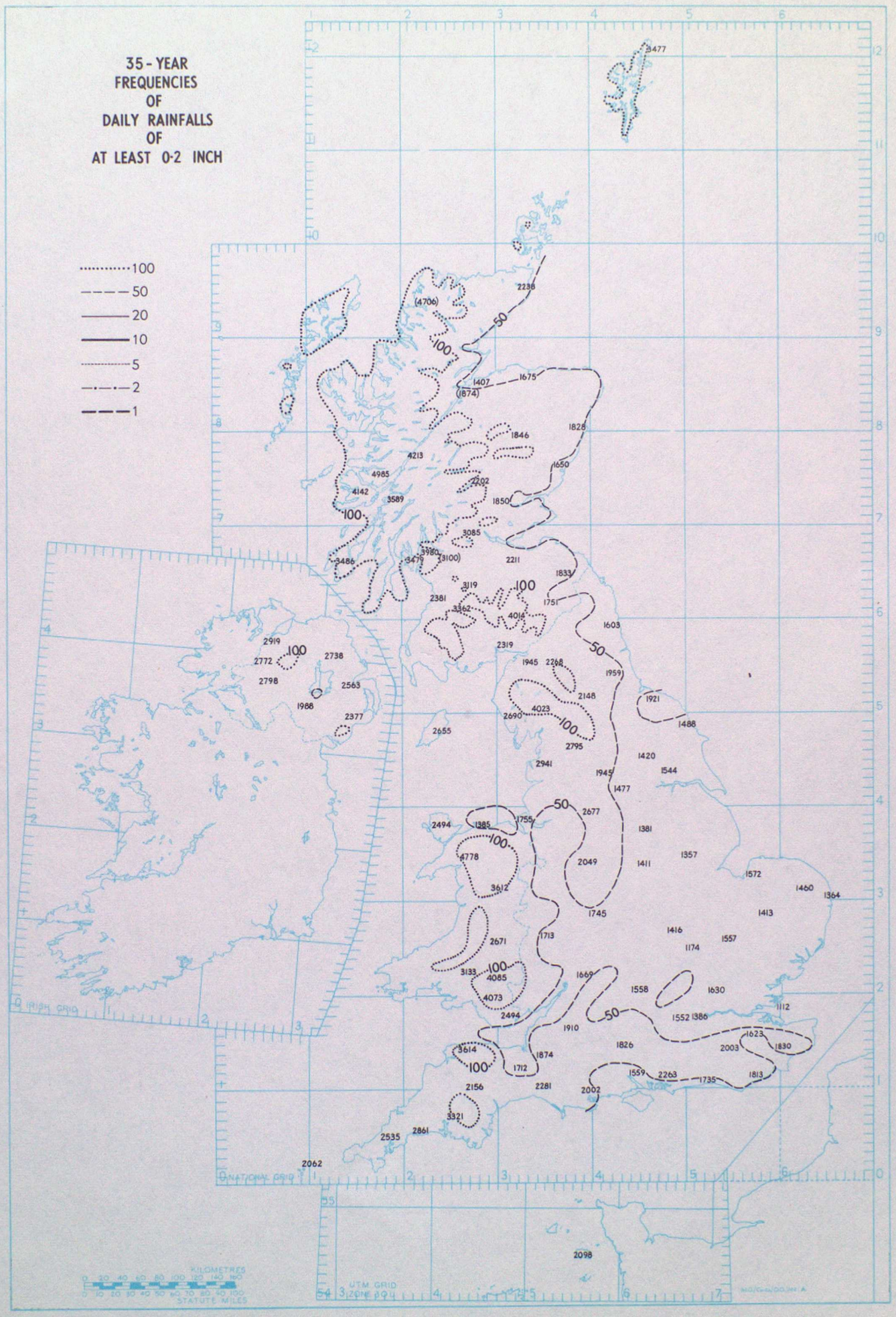
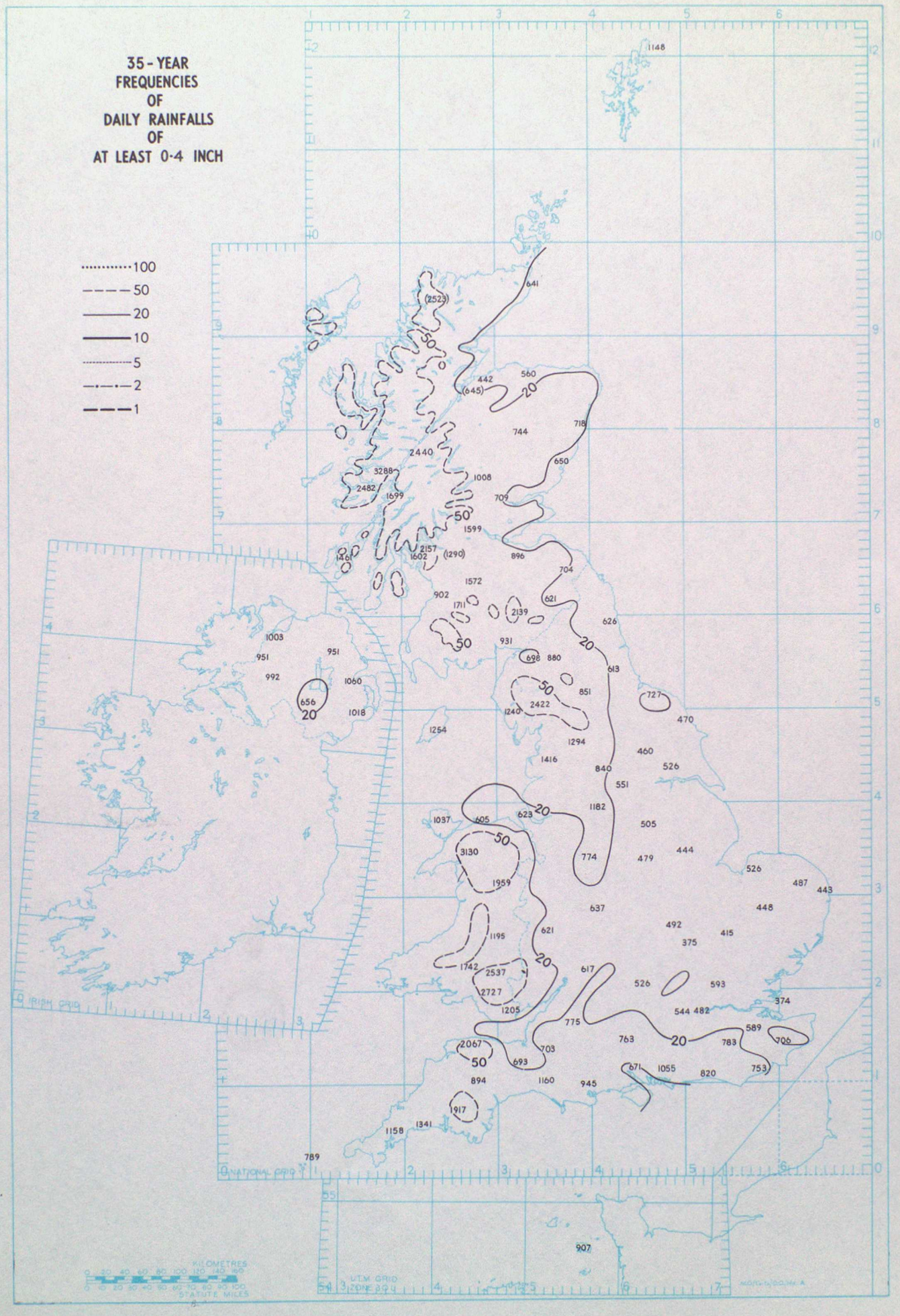
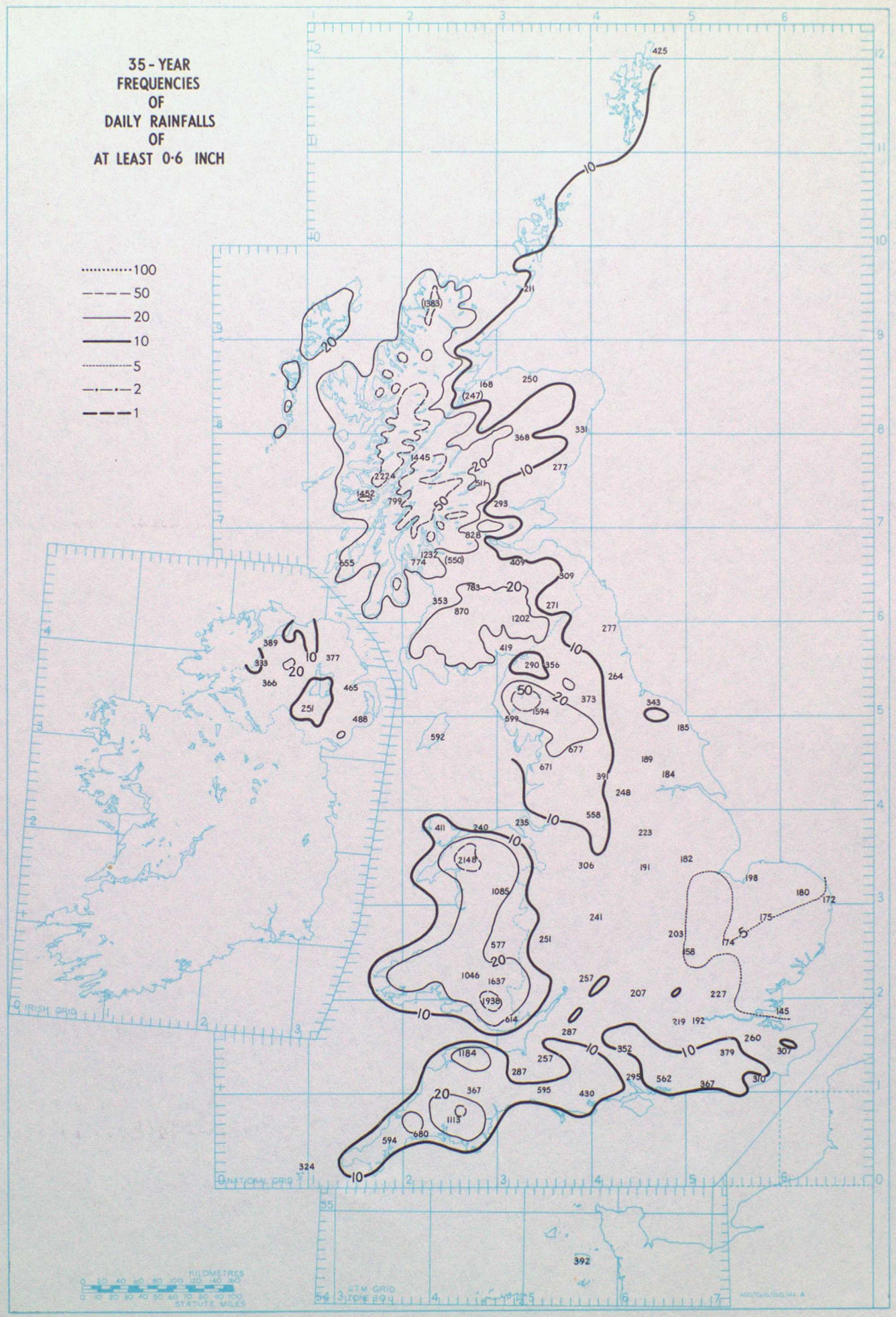
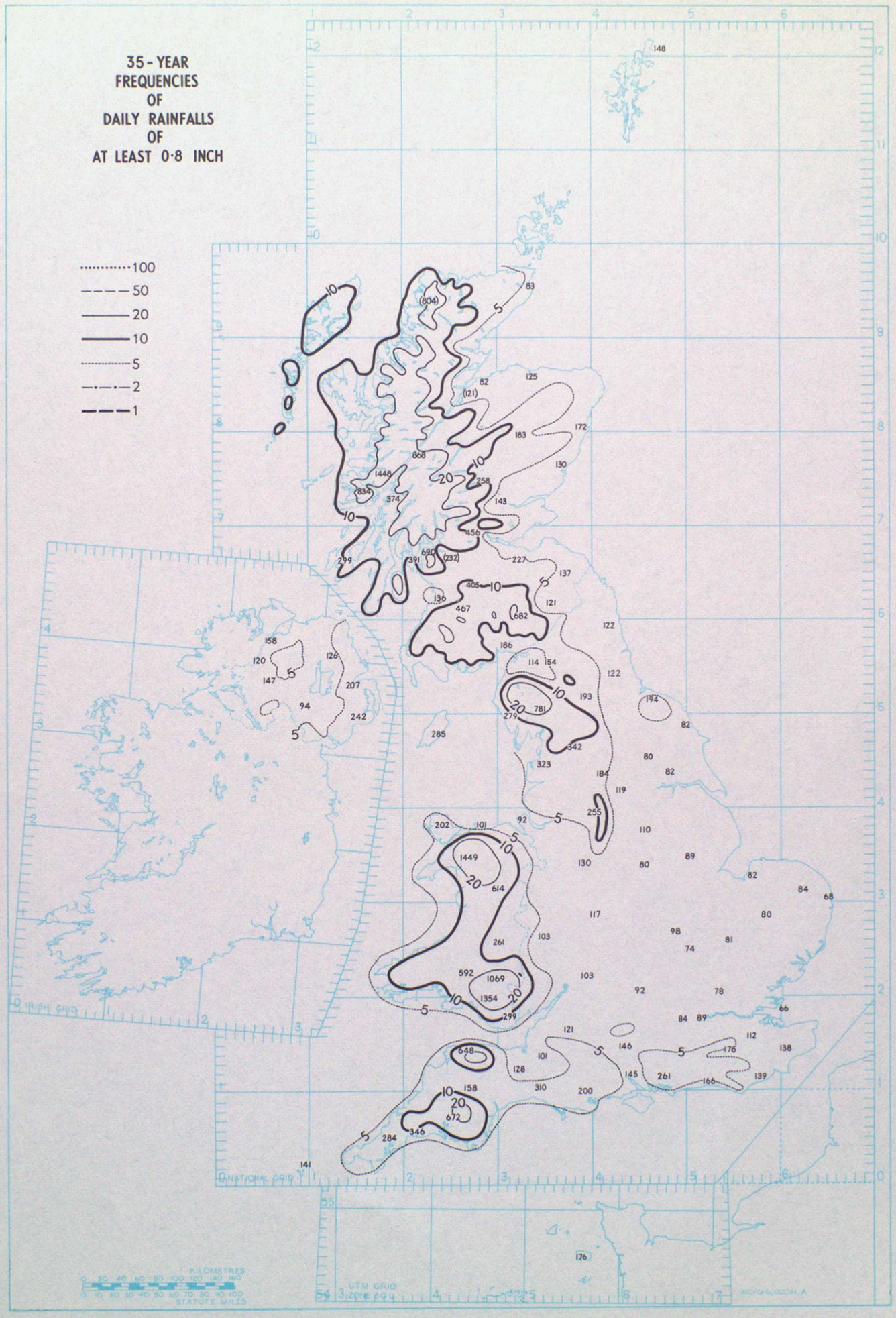
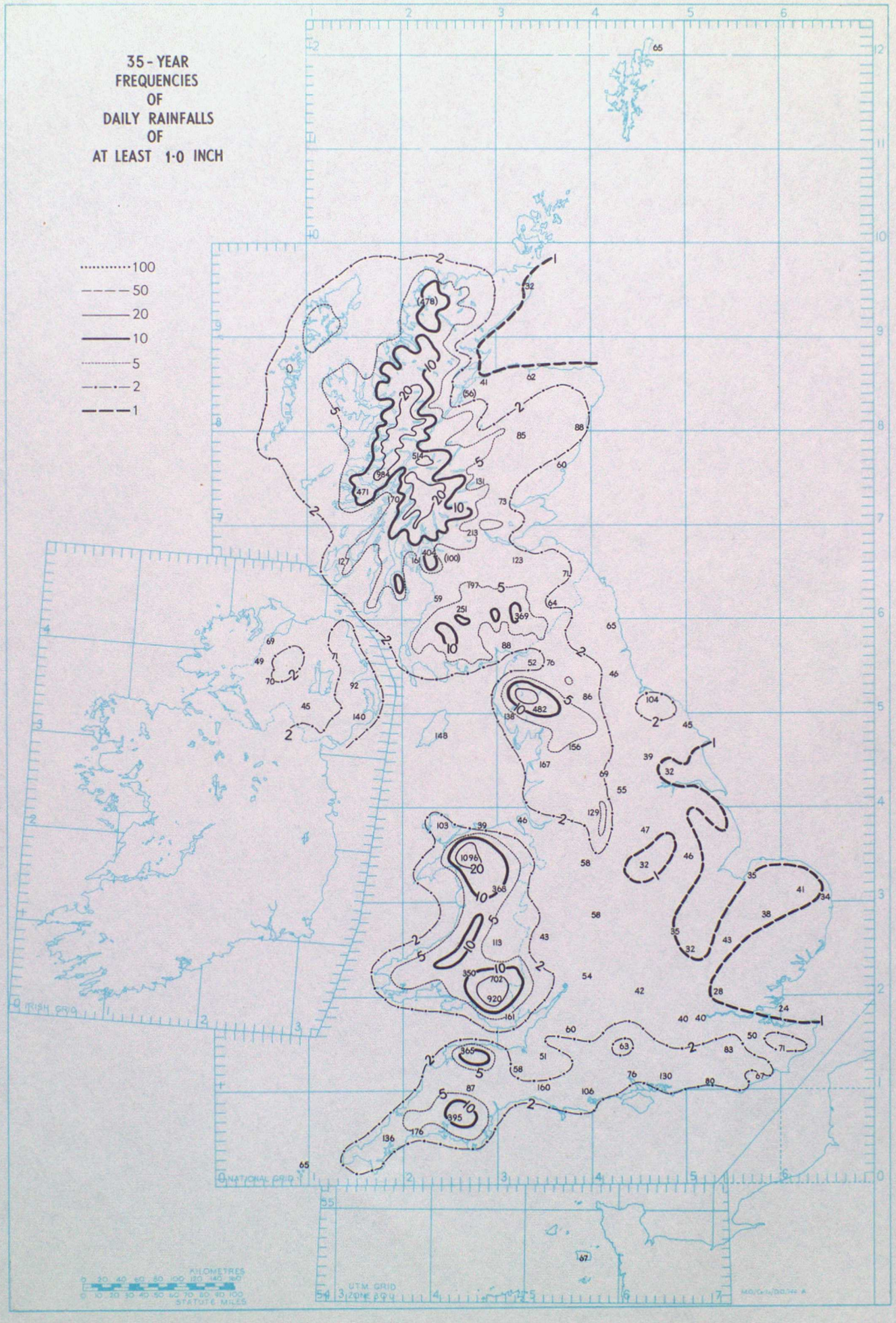
STATIONS USED FOR 35-YEAR
FREQUENCIES OF DAILY RAINFALL
Baltasound
Wick
Loch More
Nairn
Fochabers
Inverness
Mannofield
Balmoral
Fort William
Kingairloch
Montrose
Aberfeldy
Gruline
Oban
Perth
Touch Res.
Loch Thom
Renfrew
Edinburgh
Glen Cottage
Eallabus
Rothesay
Marchmont House
Strathaven
Ayr Cemetery
Ayr Sanatorium
Denholm
Eskdalemuir
Morpeth, Cockle Park
Creggan Res.
Sion Mills
Ballymena
Omagh
Belfast
Armagh
Seaforde
Carlisle
Geltsdale
Durham
Hury Res.
Lockwood Res.
Windermere
Ravenglass
Scarborough
Douglas
Settle
York
Barnacre Res.
Bradford
Holme on Spalding Moor
Wakefield
Llanerchymedd
Llandudno
Bidston
Swineshaw
Worksop
Blaenau Ffestiniog
Longton, Meir
Nottingham
Cranwell
Sandringham
Sprowston
Gorleston
Lake Vyrnwy
Birmingham, Edgbaston
Thetford
Wellingborough
Cambridge
Newbridge
Grantsfield
Bedford
Pontcrynfe
Beacons Res.
Cheltenham
Oxford
Cheshunt
Treherbert
Shoeburyness
Windsor
Kew
Cardiff (3 stations)
Bath
East Malling
Andover
Edenbridge
Ashford
Challacombe
Street, Millfield
Taunton
Southampton
Compton House
Brighton
Hastings
Copplestone
Beaminster
Corfe Mullen
Redstone Res.
St Austell
Truro
Tresco
Jersey, Millbrook Res.
IRISH GRID
NATIONAL GRID
UTM GRID
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·2 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
UTM GRID
ZONE 29
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·4 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
U.T.M. GRID
ZONE 29
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·6 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
UTM GRID
ZONE 29
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 0·8 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
UTM GRID
KILOMETRES
STATUTE MILES


35 - YEAR
FREQUENCIES
OF
DAILY RAINFALLS
OF
AT LEAST 1·0 INCH
100
50
20
10
5
2
1
IRISH GRID
NATIONAL GRID
KILOMETRES
STATUTE MILES
UTM GRID
ZONE 29